AMENDMENTS TO CLAIMS

The following is a complete listing of all claims presently in the application, wherein Claims 1 and 24 are amended:

1. (currently amended) A pigment-based inkjet ink set comprising a black ink and at least one dye-based color ink, said black ink including at least one self-dispersed black pigment, at least one cosolvent, water, optionally at least one water-soluble surfactant/amphiphile, and a polymer, wherein said polymer ~~comprises~~ consists essentially of a hydrolyzed form of styrene-maleic anhydride copolymer and wherein said at least one color ink includes a component selected from the group consisting of multivalent salts and organic acids ~~that interacts with said polymer at an appropriate pH~~ wherein said styrene-maleic anhydride copolymer interacts with said multivalent salts which are incompatible therewith or wherein said styrene-maleic anhydride copolymer interacts with said organic acids by rendering ~~said pigment dispersed with~~ said polymer in said black ink insoluble by transforming said polymer into a water-insoluble protonated form and thereby improve black-to-color bleed,
and wherein said organic acids are selected from the group consisting of: polyacrylic, acetic, glycolic, malonic, malic, maleic, ascorbic, succinic, glutaric, fumaric, citric, tartaric, lactic, sulfonic, ortho-phosphoric acids and mixtures thereof.

2. (original) The inkjet ink set of Claim 1 wherein said black pigment has a concentration in said ink of about 0.001 to 10 wt%.

3. (original) The inkjet ink of Claim 1 wherein said black pigment is self-dispersed.

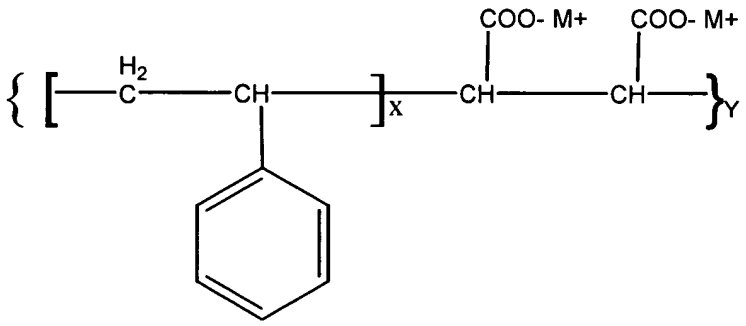
4. (original) The inkjet ink set of Claim 1 wherein said cosolvent has a concentration in said ink of about 0.01 to 50 wt%.

5. (original) The inkjet ink set of Claim 1 wherein said at least one surfactant/amphiphile has a concentration in said ink of up to 40 wt%.

6. (original) The inkjet ink set of Claim 5 wherein said at least one surfactant/amphiphile has a concentration of about 0.1 to 5 wt%.

7. (original) The inkjet ink set of Claim 1 wherein said water comprises the balance of said ink.

8. (original) The inkjet ink set of Claim 1 wherein said styrene-maleic anhydride copolymer has the general formula:



(I)

where counter-ion M^+ is selected from the group consisting of sodium, potassium, ammonium, trimethylammonium, and lithium.

9. (original) The inkjet ink set of Claim 8 wherein said copolymer has a molar ratio of styrene to maleic anhydride repeat units within a range of from 0.2 to 5.

10. (original) The inkjet ink set of Claim 9 wherein said molar ratio is within a range of from 0.5 to 2.

11. (original) The inkjet ink set of Claim 8 wherein said copolymer has a molecular weight within a range of about 500 to 50,000 (molecular weight average).

12. (original) The inkjet ink set of Claim 11 wherein said molecular weight is within a range of about 1,000 to 10,000.

13. (original) The inkjet ink set of Claim 1 wherein said styrene-maleic anhydride copolymer has a concentration in said ink of about 0.1 to 10 wt%.

14. (original) The inkjet ink set of Claim 13 wherein said styrene-maleic anhydride copolymer has a concentration of about 0.1 to 3 wt%.

15. (previously presented) The inkjet ink set of Claim 1 wherein said multivalent salts include at least one multivalent cation.

16. (original) The inkjet ink set of Claim 15 wherein said at least one multivalent cation is selected from the group consisting of alkaline metal earths of Group 2A of the Periodic Table, transition metals of Group 3B of the Periodic Table, cations from Group 3A of the Periodic Table, lanthanides, and mixtures thereof.

17. (original) The inkjet ink set of Claim 16 wherein said at least one multivalent cation is selected from the group consisting of magnesium, calcium, lanthanum, aluminum, neodymium, and mixtures thereof.

18. (original) The inkjet ink set of Claim 15 wherein said at least one multivalent cation is present in an amount of about 1 to 10 wt% of said at least one color ink.

19. (previously presented) The inkjet ink set of Claim 1 wherein said at least one color ink includes at least one said organic acid.

20. (canceled)

21. (canceled)

22. (previously presented) The inkjet ink set of Claim 1 wherein said at least one organic acid is present in an amount of about 0.25 to 20 wt% of said at least one color ink.

23. (original) The inkjet ink set of Claim 22 wherein said at least one organic acid is present in an amount of about 1 to 5 wt% of said at least one color ink.

24. (currently amended) A method of controlling bleed between a black pigment-based inkjet ink and a color dye-based inkjet ink, said black pigment-based ink including at least one self-dispersed black pigment, said method comprising formulating said black ink with a polymer, wherein said polymer ~~comprises~~ consists essentially of a hydrolyzed form of styrene-maleic anhydride copolymer and wherein said at least one color ink includes a component selected from the group consisting of multivalent salts and organic acids ~~that interacts with said polymer at an appropriate pH~~ wherein said styrene-maleic anhydride copolymer interacts with said multivalent salts which are incompatible therewith or wherein said styrene-maleic anhydride copolymer interacts with said organic acids by rendering ~~said pigment dispersed with~~ said polymer in said black ink insoluble by transforming said polymer into a water-insoluble protonated form,
and wherein said organic acids are selected from the group consisting of: polyacrylic, acetic, glycolic, malonic, malic, maleic, ascorbic, succinic, glutaric, fumaric, citric, tartaric, lactic, sulfonic, ortho-phosphoric acids and mixtures thereof.

25. (original) The method of Claim 24 wherein said self-dispersed black pigment has a concentration in said ink of about 0.001 to 10 wt%.

26. (original) The method of Claim 24 wherein said black pigment is self-dispersed.

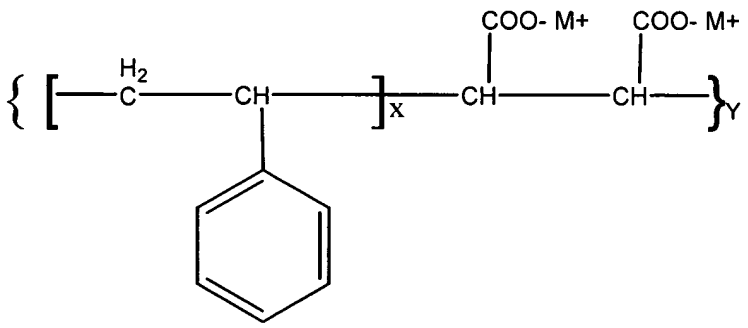
27. (original) The method of Claim 24 wherein said cosolvent has a concentration in said ink of about 0.01 to 50 wt%.

28. (original) The method of Claim 24 wherein said at least one surfactant/amphiphile has a concentration in said ink of up to 40 wt%.

29. (original) The method of Claim 28 wherein said at least one surfactant/amphiphile has a concentration of about 0.1 to 5 wt%.

30. (original) The method of Claim 24 wherein said water comprises the balance of said ink.

31. (original) The method of Claim 24 wherein said styrene-maleic anhydride copolymer has the general formula:



(I)

where counter-ion M^+ is selected from the group consisting of sodium, potassium, ammonium, trimethylammonium, and lithium.

32. (original) The method of Claim 31 wherein said copolymer has a molar ratio of styrene to maleic anhydride repeat units within a range of from 0.2 to 5.

33. (original) The method of Claim 32 wherein said molar ratio is within a range of from 0.5 to 2.

34. (original) The method of Claim 31 wherein said copolymer has a molecular weight within a range of about 500 to 50,000 (molecular weight average).

35. (original) The method Claim 34 wherein said molecular weight is within a range of about 1,000 to 10,000.

36. (original) The method of Claim 34 wherein said styrene-maleic anhydride copolymer has a concentration in said ink of about 0.1 to 10 wt%.

37. (original) The method of Claim 36 wherein said styrene-maleic anhydride copolymer has a concentration of about 0.1 to 3 wt%.

38. (previously presented) The method of Claim 24 wherein said multivalent salts include at least one multi-valent cation.

39. (original) The method of Claim 38 wherein said at least one multi-valent cation is selected from the group consisting of alkaline metal earths of Group 2A of the Periodic Table, transition metals of Group 3B of the Periodic Table, cations from Group 3A of the Periodic Table, lanthanides, and mixtures thereof.

40. (original) The method of Claim 39 wherein said at least one multi-valent cation is selected from the group consisting of magnesium, calcium, lanthanum, aluminum, neodymium, and mixtures thereof.

41. (original) The method of Claim 38 wherein said at least one multi-valent cation is present in an amount of about 1 to 10 wt% of said color ink.

42. previously presented) The method of Claim 24 wherein said at least one color ink includes at least one said organic acid.

43. (canceled)

44. (canceled)

45. (original) The method of Claim 24 wherein said at least one organic acid is present in an amount of about 0.25 to 20 wt% of said at least one color ink.

46. (original) The method of Claim 45 wherein said at least one organic acid is present in an amount of about 1 to 5 wt% of said at least one color ink.

REMARKS

Claims 1-19, 22-42, 45, and 46 remain in the application. Independent Claims 1 and 24 are amended to overcome rejections under 35 USC 112.

The comments by the Examiner in both the final rejection dated April 26, 2006, and the Advisory Action dated July 10, 2006, are responded to as appropriate below.

Claims 1-19, 22-42, and 45-46 are rejected under 35 USC 112, first paragraph, as failing to comply with the written description requirement.

The Examiner contends that the written description as to the multivalent salts interacting with the polymer "at an appropriate pH" is not supported in the specification.

Applicants have deleted the phrase "at an appropriate pH" in independent Claims 1 and 24. Further, Applicants have amended Claims 1 and 24 to recite the interactions with the styrene-maleic anhydride copolymer with the multi-valent salts and the organic acids, based on the disclosure in paragraphs 0028 and 0030, respectively.

The specification clearly discloses interaction of the styrene/maleic anhydride polymers in the black ink "interact with incompatible multi-valent (inorganic or organic) salts in the second, or color, ink" (paragraph 0028). Likewise, "[a]n ink-jet ink composition employing an organic acid component and having an appropriate pH will render insoluble the pigment dispersion in the black inks by transforming the SMA polymer into water-insoluble protonated form" (paragraph 0030). Thus, in both instances, the interaction with the SMA polymer results in an insoluble product. It is this insoluble product that inhibits black-to-color bleed.

Both claims, as amended, recite

> "wherein said at least one color ink includes a component selected from the group consisting of multivalent salts and organic acids wherein said styrene-maleic anhydride copolymer interacts with said multivalent salts which are incompatible therewith or wherein said styrene-maleic anhydride copolymer interacts with said organic acids by rendering said polymer in said black ink in-